

A Comparison Table attached hereto succinctly shows a comparison of the prior art and unexpected advantages of the present invention as compared to the applied art.

In the Office Action Final Rejection, it was stated that clarification was required providing evidence that a relied upon range is critical. Such evidence is being herewith provided according to the Table.

Controls having unacceptable features

In the specification as filed, control groups were shown with composition of Au/Al alloy. In such control group alloys the ratio of Au to Al was 3.0 and 3.65 respectively. In both cases the metallurgical performance was unacceptable for the purpose intended, namely, fabrication of ornamental pieces. Furthermore, such alloys showed performance so poor their application to any commercial purpose is questionable.

In one case, the color of the material was good for the purpose of jewelry but the metallurgical features were unacceptable, namely, hard, brittle, surface fractures. In another case, the color of the material was poor since aluminum surface deposits were formed thereon and the metallurgical features were unacceptable, namely too soft, indentations on surface.

In particular, the ratio of Au to Al in the poor quality control group overlaps and is within the ratios of those in the prior art cited by the Examiner, namely JP '729 and JP '847.

Examples of the invention having unexpectedly good features.

In each of the examples, the Au to Al ratio was selected to be 3.66 or greater. In all six cases of the examples, the metallurgical performance was good, so that the material was both tough in resisting surface fractures and was hard in resisting indentation. In all cases the color was very good, having the desired purple hue.

In those examples where the Au/Al ratio was relatively low, some quantity of an additional component, either palladium or nickel, was added.

It is apparent that the present invention for the first time reveals the essential ratio of gold to aluminum of at least 3.66 whereby the advantages of good metallurgical performance and attractive color are both achieved, not heretofore identified previously.

These features are captured in Claim 1 and the Claims which depend therefrom.

Claim 1 captures the heretofore unknown essential feature that a specific gold to aluminum ratio must exist in order to have acceptable metallurgical property and good color.

In addition, Claim 5 has been amended to independent form and captures the feature that where the Au to Al ratio is relatively broad, an added element, namely, palladium or nickel is included, in a very low amount to provide the attractive metallurgical performance without detracting from the desired color.

It is described in the specification that a very small quantity of such additive is desired since larger amounts tend to be noticeable in the color. No applied

art suggest such small quantity, the nature of the additive, and the dramatic improvements from same.

Claim 13 is submitted to be patentable for reasons given with respect to Claim 5.

The present invention teaches for the first time, that certain alloy components may be included in the gold-aluminum mixture in order to avoid problems with metallurgical performance while also permitting the gold to aluminum ratio to vary widely (Claim 5).

In short, there is no suggestion in the prior art that: (1) gold content below 78.5 weight percent is undesirable; (2) such gold content below 78.5% having poor performance may be offset by judicious selection of alloy material; (3) gold content greater than 78.5% and up to a maximum of 83.5% is desirable, but above the upper limit is undesirable from a metallurgical point of view.

Further, only the present invention teaches that the art ranges encompass a very undesirable condition of pure intermetallic compounds stated at page 3, lines 20 to 25, namely, the intermetallic 78.5 wt% Au and 21.5 wt% Al and Au/Al ratio of 3.65; and to avoid gold content of 78.5 wt% or less, unless an additional element is present for the reasons stated.

Therefore Applicant's invention as defined in independent Claims 1, 5 and 13 herein capture critical and heretofore undefined and unknown narrow ranges, which alone lead to advantageous metallurgical properties as well as good color properties. For these reasons it is respectfully requested that this present amendment be entered, the rejections for anticipation and obviousness be withdrawn.

This amendment is being filed via facsimile transmission to expedite consideration and telephone interview is respectfully requested before issuance of the subsequent action.

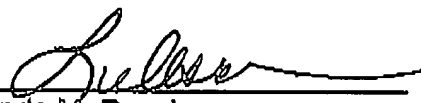
CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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ATTACHMENT FOR CLAIM AMENDMENTS

The following is a marked up version of each amended claim in which underlines indicates insertions and brackets indicate deletions.

1. (Twice Amended) A jewellery alloy comprising 76-83.5 wt% gold and 16.5 – 21.5 wt% aluminum, a gold to aluminum weight ratio of at least 3.66, and having a substantially purple hue.

5. (Twice Amended) A jewellery [allow according to claim 1, further comprising at least one] alloy consisting of 76 - 83.5 wt% gold and 16.5 – 21.5 wt% aluminum and an additional element selected from the group consisting of palladium and nickel; provided that when said palladium [and] or nickel is present, it is present in an amount by wt of up to 4%; and provided that when said nickel is present, it is present in an amount by wt of up to 2%.

13. (Twice Amended) An alloy comprising 16.5 - 21.5 wt% aluminum, 0-4.0 wt% palladium, 0-2 wt% nickel and the balance gold, provided that [at least] one of said palladium and nickel is present.

Please cancel Claim 7 without prejudice or disclaimer of the subject matter contained therein.

COMPARISON TABLE

	Au/Al		Au / Al Ratio	Performance	Color
Controls Comparison					
1	78.5	21.5	3.65	Hard, brittle, surface fractures	Good purple
2	75	25	3.0	Too soft, surface indentations	Poor, Al surface deposits

Examples of the Invention

1	80.5	19.5	4.13	Tough, hard	Good, purple
2	81	19	4.26	Same	Same
3	79.7	19.3 + Pd	4.13	Same	Same
4	79.7	19.3 + Ni	4.13	Same	Same
5	79.4	18.6 + Pd	4.27	Same	Same
6	77	20 + Pd	3.85	Same	Same

Independent Claims of the Invention

Claim 1 3.66 or greater Au/Al

Claims 5
&
13 76% -83.5% Au plus Al plus one of two additives max 4%

Art

JP '729 70-83% Au, 30-17% Al, 7-30% Ni, Co, Pd
JP '847 70-85% Au, 15-30% Al

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